Remarks

The final Office Action mailed December 16, 2003, has been received and reviewed. Claims 1 through 45 are currently pending in the application. Claims 1-11 and 16-45 were previously withdrawn. Claims 12-15 stand rejected. Claims 12, 13 and 15 are amended herein, and new claims 46-52 are added. The present amendment is filed with a Request for Continued Examination. All amendments are made without prejudice or disclaimer. Reconsideration is respectfully requested.

35 U.S.C. § 102 Rejections

Claims 12-15 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Borrebaeck (U.S. Patent 6,027,930) (hereinafter "Borrebaeck"). Applicants respectfully traverse this rejection.

In the Office Action, Borrebaeck was thought to disclose "an infectious phage that contains a mutant form of coat protein", which applicants do not concede. (Paper No. 19, page 3). That, however, is not the presently claimed invention. Borrebaeck fails to disclose, either expressly or inherently, an infectious phage containing at least one copy of a mutant form of a phage coat protein, **wherein the mutant form** has lost the ability to mediate infection of a natural host by the infectious phage as recited in the pending claims.

Borrebaeck also fails to disclose an infectious phage further comprising "at least one copy of a fusion protein wherein a proteinaceous molecule is fused to a functional form of the phage coat protein, [wherein] the functional form of the phage coat protein renders the infectious phage infectious" as recited in the amended claims. Support for the amendment to claims 12, 13 and 15 can be found throughout the as-filed specification, for example, page 17, lines 1-8 and 17-19; page 17, line 29- page 18, line 7 and page 19, lines 3-10.

Borrebaeck discloses three types of phages. A first phage is a protein-3 deleted helper phage that retains the protein-3 promoter and displays the protein-3 on its surface. (Borrebaeck, col. 5, lines 1-10). The surface protein-3 is provided by a plasmid comprising the sequence encoding protein-3 (*Id.*). The helper phages do not have "at least one copy of a mutant form of a

phage coat protein" nor do they have "at least one copy of a fusion protein" as recited in claims 12-15.

In contrast to the infectious phage of claims 12-15, Borrebaeck teaches that the mutant coat protein should be complemented with a mutant helper phage resulting in a non-infectious phage. (Borrebaeck, col. 5, lines 28-29). Borrebaeck discloses a second phage produced by cells comprising the identified mutant helper phages and a phagemid encoding for an anti-hen egg lysozyme Fab fragment, fused with the carboxy-terminal part (CT-part) of the protein-3 (Borrebaeck, col. 5, lines 25-29). Thus, in Example 2 of Borrebaeck, the cells containing a pUC19-based plasmid encoding the Fab and CT fusion "were infected with mutant helper phages" (having a genome wherein the nucleotide sequence encoding the p3 protein was deleted). (Borrebaeck, col. 5, lines 28-29, emphasis added). The resulting phages were non-infectious. (Borrebaeck, col. 5, line 29, emphasis added).

Additionally, as recited in the amended claims, the claimed phage includes "at least one copy of a fusion protein wherein a proteinaceous molecule is fused to a functional form of the phage coat protein, the functional form of the phage coat protein renders the phage infectious." The second phage of Borrebaeck contains a fusion protein of a proteinaceous molecule to a part of a phage coat protein (the C-terminal part) which part does not render the phage infectious. As this second phage is non-infectious, it cannot anticipate the infectious phage of claim 12 or the phage collection of claims 13-15.

A third phage of Borrebaeck contains a mutant form of the phage coat protein (a CT/Fab part coupled to a fusion protein containing hen egg lysozyme and a part of the N-terminal part of the protein-3), which "mutant form" **retains** the ability to mediate infection of a natural host by the infectious phage. This phage lacks "at least one copy of a fusion protein wherein a proteinaceous molecule is fused to a functional form of the phage coat protein, the functional form of the phage coat protein renders the phage infectious" as recited in the amended claims. Further, as the "mutant form" in the third phage retains the ability to mediate infection of a natural host by the infectious phage, it cannot anticipate the infectious phage of claim 12 or the phage collection of claims 13-15 which include the element that the mutant form has lost such an ability. Reconsideration and withdrawal of the rejection is requested.

New claims

New dependent claims 46-52 are added herein. Support for the new claims can be found throughout the as-filed specification and no new matter is added. For example, claims 46, 47, 48, and 50 are similar to claims 2, 3, 4, and 5 and are further supported by the as-filed specification, for example at page 12, lines 13-16 and page 18, lines 23-25 (claim 46); page 12, lines 13-16 and page 18, lines 26-29 (claim 47); page 18, lines 32-34 (claim 49); and page 18, lines 3-10 (claim 50). Claim 49 is supported by the as-filed specification, for example, page 19, lines 26-32. Claim 51 is supported by the as-filed specification, for example, page 21, lines 31-33 and claim 52 is supported by the as-filed specification, for example, page 12, lines 22-25; and page 21, line 35 – page 22, line 5.

Conclusion

Claims 12-15 and 46-52 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Office determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact applicants' undersigned attorney.

Respectfully submitted,

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Date: June 14, 2004